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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,049	12/30/2003	David B. Olson	58907US002	6791
32692 7590 01/19/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT	PAPER NUMBER
			1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/748,049

Applicant(s)

OLSON ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 8, 14-18 and 20-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-13 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action follows a response filed on November 20, 2006. Claims 1 and 19 have been amended.
2. In view of the amendment, the rejection of the claims 1-7, 9-13 and 19 has been withdrawn. Applicant's arguments with respect to claims 1 and 19 have been considered but are moot in view of the new ground(s) of rejection.
3. The Declaration under 37 CFR 1.132 filed on November 20, 2006 is insufficient to overcome the rejection of claims 1-7, 9-13 and 19 based upon 35 U.S.C. 103(a) as set forth in the last Office action because: the declaration fails to set forth the evidence of unexpected results. It is worth to mention, "Although an affidavit or declaration which states only conclusions may have some probative value, such an affidavit or declaration may have little weight when considered in light of all the evidence of record in the application. *In re Brandstadter*, 484 F.2d 1395, 179 USPQ 286 (CCPA 1973).
4. The claims 1-7, 9-13 and 19 are active.

Specification

5. The amendment filed on November 20, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: there is no limitation in the specification

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including the examples (page 13, line 10 through page 16, line 3) indicating that the polymerizable composition is solvent-free.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no any indication in the specification and in the claims that the polymerizable composition is solvent-free, which consequently raise doubt as to possession of the claimed invention at the time of filing.

Claim Rejections - 35 USC § 103

7. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

8. Claims 1-7, 9-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (U.S. Patent 6,261,700) in view of Williams et al. (U.S. Patent 5,626,800) and further in view of Martens (U. S. Patent 4,576,850).

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Olson discloses coatings; composite structures containing coatings, and compositions for preparing and methods of preparing coatings and composite structures, wherein the compositions comprise inorganic oxide particles and polymerizable brominated compounds, and coatings comprise inorganic oxide particles and a brominated polymer (abstract).

With regard to the limitations of instant claim 1, Olson discloses the compositions, which contain ingredients including inorganic oxide particles and a curable binder precursor, wherein the binder precursor includes a polymerizable brominated compound. Particularly preferred polymerizable brominated compounds comprise polymerizable aromatic, brominated (meth)acrylate compounds having an aromatic portion, a brominated portion (which may or may not be the aromatic portion), and a (meth)acrylate moiety (col. 4, lines 53-63).

Olson discloses that the most preferable first monomer comprising a major portion of 2-propeonic acid, (1-methylethylidene)bis[(2,6,dibromo-4,1-phenylene)oxy(2-hydroxy-3,1-propanediyl)] ester as the reaction product of **tetrabromobisphenol A diglycidyl ether** and **(meth) acrylic acid** which is known under the trade designation 'RDX-51027" and used in the table 1, examples 1 and 3 (col.26, lines 18-55). This component is readable as component a) in the instant claim 1. Other examples of polymerizable brominated compounds that can be useful in the binder precursor include but are not limited to **tribromophenyl (meth)acrylate**, **pentabromophenyl (meth)acrylate**, **tribromophenylethyl (meth)acrylate**, **bromomethyl styrene**, and **brominated**

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bisphenol A (meth)acrylate compounds (col. 8, lines 28-33). Tribromophenyl (meth)acrylate is readable as component b) in the instant claim 1.

A multifunctional non-brominated compound can be any multifunctional non-brominated compound that can react with the other components of the binder precursor to produce a polymer. Preferred multifunctional non-brominated compounds comprise ester (meth)acrylate compounds such as difunctional (meth)acrylate esters of a polyhydric alcohol, and combinations thereof. Of these, trifunctional and tetrafunctional esters of (meth)acrylate esters of polyhydric alcohol can be especially preferred. Examples of suitable multifunctional ester (meth)acrylates include poly(meth)acrylic acid esters of polyhydric alcohols including, for example, **tri(meth)acrylic acid esters of pentaerythritol**, etc. Particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of **pentaerythritol** (col. 12, line 39 through col. 13; line 13). **Pentaerythritol tri(meth)acrylate** is readable as component c) in the instant claim 1.

Olson discloses that the binder precursor can optionally include one or more polymerizable non-brominated compound (e.g., a monomer, dimer, oligomer, pre-polymer, or polymer), which can react with other components of the binder precursor to provide a brominated polymeric matrix. Such non-brominated compounds can include low molecular weight reactive **diluents** which can modify flow properties of the composition, and **multi-functional crosslinking agents** to crosslink polymers upon reaction and provide a highly crosslinked matrix (col. 10, line 67 through col. 11, line 13). Examples of suitable monofunctional non-

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brominated polymerizable compounds include 2-hydroxyethyl (meth)acrylate, 2-methylbutyl (meth)acrylate, (meth)acrylic acid, itaconic acid, **2-phenoxyethyl (meth)acrylate**, etc. (col. 11, lines 35-45), thus naming the species of the instant claims, including those elected by Applicant. **2-phenoxyethyl (meth)acrylate** is readable as component d) in the instant claim 1.

Olson discloses examples of photoinitiators that generate a free radical source when exposed to ultraviolet light include, but are not limited to, organic peroxides, azo compounds, quinones, etc. (col. 17, lines 23-30). A **photoinitiator** is readable as component e) in the instant claim 1.

Olson does not disclose that a brightness enhancing film comprising an optical layer having a linear array of regular right prisms and that the polymerizable composition is solvent-free.

Williams discloses a method of producing a microstructure bearing article that includes the steps of molding the microstructure on the base, curing the resin that forms the microstructure, and heat treating the microstructure (abstract).

With regard to the limitations of instant claim 1, Williams discloses that the brightness enhancement film 11 includes an array of prisms typified by prisms 22, 24, 26, and 28, as illustrated in FIG. 2. Each prism, for example, such as prism 22, has a first facet 30 and a second facet 32. The prisms 22, 24, 26, and 28 are formed on a body portion 34 that has a first surface 36 on which the prisms are formed and a second surface 38 that is substantially flat or planar and

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opposite the first surface. **A linear array of regular right prisms is preferred for both optical performance and ease of manufacture** (col. 2, lines 43-52).

Martens discloses an article comprising a shaped, plastic layer or body comprising crosslinked polymer with hard and soft segments or moieties and having a microstructure-bearing surface is prepared by a process comprising filling a mold master, bearing or encoded with the microstructure to be replicated, with a fluid, castable, one-part, preferably **solvent-free**, radiation addition-polymerizable, crosslinkable, synthetic, organic oligomeric composition (abstract).

All three references are analogous art because they are from the same field of endeavor concerning new polymerizable compositions for optical articles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate optical layer having a linear array of regular right prisms as taught by Williams in Olson's polymerizable composition for optical articles and to obtain the polymerizable composition as solvent-free as taught by Martens because of the following: 1) a linear array of regular right prisms is preferred for both optical performance and ease of manufacture (US'800, col. 2, lines 50-52), 2) use of solvents require a long time to evaporate, long cure cycles, curable materials which have a limited "pot" life, or result in replicated articles having limited toughness and dimensional stability and with severe shrinkage (US'850, col. 2, lines 4-8), and thus to arrive at the subject matter of instant claim 1 and dependable claims 2-7 and 9-13.

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With regard to the limitations of instant claims 2-4, Olson discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can include from **about 20 to about 80 parts by weight** (pbw) polymerizable **brominated** compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines 19-22).

With regard to the limitations of instant claims 5-6, Olson discloses that the binder precursor can also contain polymerizable **non-brominated** compound in useful amounts, e.g., from **about 20 to 80 pbw**, preferably about 50 to 70 pbw, based on 100 pbw binder precursor, which is within the claimed range (col. 13, lines 31-33).

It is noted that the amount of the weight ratio of the components A and B is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per *In re Boesch and Slaney* 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382: "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."

With regard to the limitations of instant claims 7 and 9, Olson discloses that particularly preferred multifunctional ester (meth)acrylic acids can comprise a mixture of di-, tri-, and tetra(meth)acrylate esters of **pentaerythritol** (col. 12, line 39 through col. 13, line 13). The amount of **pentaerythritol triacrylate** is within the claimed range (see Component A (col. 24, lines 65-67), Component B (col.

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25, lines 18-20) and Component C (col. 25, lines 48-50)). Pentaerythritol triacrylate is a liquid at ambient (room) temperature with low volatility, fast curing monomer for use in free radical polymerization (see www.sartomereurope.com).

With regard to the limitations of instant claims 10-13, Olson discloses that **2-(phenoxy)ethyl (meth)acrylate** as monofunctional (meth) acrylate diluent is a liquid at ambient (room) temperature with low volatility and $T_g = 54^{\circ}\text{C}$ (col. 11, line 42).

With regard to the limitations of instant claim 19, Olson discloses that while amounts outside of the following ranges may be useful, preferred binder precursors can include from **about 20 to about 80 parts by weight** (pbw) polymerizable **brominated** compound, e.g., aromatic, brominated (meth)acrylate compound, which is within the claimed range (col. 13, lines 19-22).

Olson does not disclose that the polymerizable composition is solvent-free.

As it was mentioned above, Martens discloses an article comprising a shaped, plastic layer or body comprising crosslinked polymer with hard and soft segments or moieties and having a microstructure-bearing surface is prepared by a process comprising filling a mold master, bearing or encoded with the microstructure to be replicated, with a fluid, castable, one-part, preferably **solvent-free**, radiation addition-polymerizable, crosslinkable, synthetic, organic oligomeric composition (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain Olson and Williams's

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polymerizable composition for optical articles as **solvent-free** as taught by Martens because use of solvents require a long time to evaporate, long cure cycles, curable materials which have a limited "pot" life, or result in replicated articles having limited toughness and dimensional stability and with severe shrinkage (US'850, col. 2, lines 4-8), and thus to arrive at the subject matter of instant claim 19.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Bernshteyn
Patent Examiner
Art Unit 1713

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